

IS CRIME HEREDITARY? AN ANALYSIS OF BIOLOGICAL IDEAS FROM EUGENICS
TO THE HUMAN GENOME PROJECT

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in partial fulfillment of the requirements for completion of the
Evidence and Inquiry certificate and the
Polymathic Scholars honors program in the College of Natural Sciences at
The University of Texas at Austin

Spring 2020

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Acknowledgements

I'd like to thank Dr. Philippa Levine for all her guidance, feedback, and support throughout this project. Her support and expertise have been integral to the writing of this thesis; her expertise allowed me to explore daunting new ideas, and she's the best thesis mentor anyone could have asked for. I'd also like to thank Dr. Rebecca Wilcox for her guidance in structuring this thesis and feedback throughout its drafting. Her help identifying and narrowing the scope of this thesis was imperative to the development of ideas and conclusions. Lastly, I'd like to thank all my friends and peers who have provided feedback on this project.

Abstract

Eugenics, the idea of improving the biological quality of the human race, has been interrelated with concepts of crime since at least Classical times. The eugenics doctrine has fueled mental institutions and state-owned penitentiaries, as well as manifested itself in popular culture and scientific studies. With a focus on post-1883 American history, I examine the evolving relationship between eugenics and crime through a historical lens into the modern day to present a stance on the age-old question: is crime hereditary? I follow the separate but concurrent development of eugenics and the idea of the biological criminal, then I examine the distinct concept of a born criminal through eugenic family studies, court cases, and prison eugenics. Although eugenic criminology has lost momentum, it continues to influence modern thought, particularly in legal proceedings and the use of biological technologies. I identify a return to the biological basis of crime throughout history, and I assert that this tendency will continue with American society accepting increasingly scientific explanations for crime. Thus, based on societal definitions of criminal behavior, crime will inherently be considered hereditary. I argue that the fluid role biology plays is largely based on the social climate, and therefore biology does not take precedence over socio-environmental factors—a mistake that has been committed in the past. With advancing biological and reproductive technologies, novel issues surrounding the biological basis of crime arise: will this result in interventionist policies before an “at-risk” individual commits a crime? How will this impact our justice system? If criminality carries a biological basis, these issues must be addressed promptly.

Key terms: eugenics, crime, feeble-mindedness, heredity, criminology

Introduction

Humans have noticed the similarities between parents and their children for millennia. According to the ancient Greek philosopher Aristotle, these similarities were restricted to physical characteristics. However, according to Plato, children were created through the immortal souls of their parents and therefore also inherit their mental traits-- such as a tendency towards crime. Indeed, Plato advocated for the segregation and purging of the mentally degenerate (Kohut & Nguyen 2018), an example of eugenic thought long before the term eugenics was coined by Francis Galton in 1883. Eugenics is the idea of improving the biological fitness of the human race, either by eliminating inferior traits or encouraging the proliferation of desirable characteristics. Historically, one of these inferior traits is a predisposition towards crime and criminal behavior. However, underlying the debate between those who favor and oppose eugenics for criminality is the fundamental question: is crime hereditary?

In order to address the hereditary nature of crime, I explore how biology and crime have been interrelated throughout history and into the modern day. In particular, I examine eugenic ideas and policies regarding crime. By conducting a literature review using books, journal publications, court cases, and news articles, I use a historical perspective to observe the ways that crime has been considered hereditary. The debate surrounding the heritability of crime continues to influence court rulings and legal proceedings significantly today, and as the fields of biology and criminology continue to evolve, they also become more intertwined. The implications of this notion of hereditary crime are vast; they could include interventionist policies (punishing or otherwise treating for a condition prior to any criminal behavior), a change in the ways an

individual is treated legally, or even stigmatization and discrimination. Thus, we need to address whether there is a biological element to criminal behavior.

Should eugenics be acceptable? This question continues to be widely debated today. Most parents try to provide the best life possible for their children—whether through providing physical resources, emotional support, or financial aid. It does not seem to be a big step, then, that some parents would try to provide the best genes they can for their children. In the long run, eugenic policies such as those that aim to reduce predispositions towards crime could prove to be beneficial to society as a whole. Conversely, eugenics could carry widespread implications such as the further divide of socioeconomic classes. Traits such as skin color or a certain belief system (which has been wrongly attributed as an intrinsic characteristic of certain groups of people) are not universally considered desirable or otherwise, and eugenics could be—and has been—abused to push a certain agenda. From a moral standpoint, do we even have a right to be interfering in the personal lives of others? If we choose certain traits for our own children, are we pushing expectations onto them that could affect their own quality of life? If we have the right to choose our child's gender (as some modern assisted reproductive technology companies offer), why not choose other traits as well? Clearly, this question is very complex, and the complete ethics of eugenics will be beyond the scope of this thesis. However, these are important considerations to keep in mind as we consider the heredity of criminality.

What are Eugenics and Crime?

Before we can delve into the relationship between heredity and criminality, we must clearly define the concepts of both eugenics and crime. The term eugenics was initially coined in

1883 by Sir Francis Galton, a polymathic scholar who worked in statistics, sociology, anthropology, and other fields. Literally, the term translates to *good birth* and promotes the enhancement of the biological fitness of the human race. According to Galton, statistical data illustrating the presence of certain traits through generations proves that certain characteristics, including behavioral traits, are hereditary. Thus, in order to cull the proliferation of detrimental qualities, eugenics involves two key approaches: positive and negative eugenics. In positive eugenics, those who are deemed to have biologically superior qualities are incentivized to reproduce. Meanwhile, negative eugenics discourages the propagation of inferior qualities, often through methods such as sterilization. This idea of good and bad heredity is a global phenomenon; from the early 20th century Fitter Family Fairs of the United States, to the 1984 Graduate Mothers Scheme of Singapore, to the unique framework of the early to mid-20th century Italian Eugenics Movement, the theory of eugenics was and still remains prevalent. Perhaps the most infamous instance of eugenics was the Nazi eugenics movement, which emphasized the biological superiority of the Aryan race. This notion of racial superiority resulted in human experimentation during the Holocaust from 1941 to 1945 on those considered racially inferior, and whose victims included around six million Jewish people, 1.8 million non-Jewish Polish citizens, 200,000 Roma “gypsies,” and many other groups such as gay men or disabled citizens who were considered enemies of the Aryan state (United States Holocaust Memorial Museum, 2019). Historical figures generally associated with other roles subscribed to the doctrine of eugenics as well, including Margaret Sanger (who believed in the sterilization and segregation of the disabled) and President Franklin D. Roosevelt (who supported sterilization of criminals and the feeble-minded) (Ordovery, 2003). As our knowledge of biology and the sciences has advanced, a new field of “liberal eugenics” has subsequently emerged. This new field

emphasizes individual choice for biological enhancement through methods such as CRISPR, a DNA editing technology, for removing potentially harmful genes. Although eugenics remains a global phenomenon, I will focus on the eugenic history of the United States.

In the context of this thesis, I define crime as any action that is punishable by law. In other words, crime is any punishable behavior that is considered harmful to and deviant from social and cultural standards in a given country (in this case the United States) and time period. Thus, crime is inherently a social construct and legislation is based upon the criminalization of certain activities. One prominent example of how crime can differ between different countries and social groups can be seen in the phenomenon of prostitution. In the United States today, prostitution is illegal everywhere except a few counties in the state of Nevada that allow for regulated brothels (Snadowsky, 2005). Indeed, American perspectives beginning from 1910 criminalized the idea of the promiscuous woman, and I will later show how this has influenced the idea of heritable immorality and therefore heritable criminality. This sentiment is echoed in many different cultures and societies, and prostitution is illegal in countries such as Afghanistan, Korea, and Thailand. In contrast, prostitution is legalized and sometimes regulated in Switzerland, New Zealand, and Ecuador, among others. Clearly, prostitution as well as gay marriage and the use of recreational drugs, for example, are regarded differently in different societies. Thus crime itself is a fluid concept. However, with the biologization of crime, I argue that eugenics treats criminality as a disease rather than as a response to circumstances.

The History of Biology, Eugenics, and Crime

CRIME AND BIOLOGY

Around 1800, biological theories of crime presented themselves as a product of the 18th century Enlightenment. The concept of innate moral insanity developed in three countries almost concurrently—the United States, England, and France. Benjamin Rush, better known for his American patriotism and for signing the Declaration of Independence, was perhaps the most famous American physician and the founder of American psychiatry (Ozarin, 2006). In his “The Influence of Physical Causes upon the Moral Faculty,” (1786), he redefined crime and insanity as a disease in contrast to prevailing beliefs that mental illness was an indicator of sinfulness (Rush, 1786). Rush asserted that external physical factors could lead to immoral behavior such as crime by altering the biological state of the subject, and thus a theory relating biology and criminality was born. These arguments helped shift insanity and moral derangement from the influence of the clergy; instead criminality was a natural and scientific phenomenon.

In 1835, James Cowles Prichard, an English physician, formally defined moral insanity as a standard term in his book *A Treatise on Insanity and Other Disorders Affecting the Mind* (Prichard, 1835). The term became widespread internationally, partially due to its recognition of emotion in mental disease in contradiction to the then predominant belief that mental illness was an intellectual defect. In practice, moral insanity presented useful arguments in legal trials in the 19th century, explaining cases such as the 1846 Van Nest Murders in upstate New York, where a family of seven was slaughtered in their home for no apparent reason. Although the assailant, William Freeman, was deemed to be sufficiently sane to stand trial, it was the first case in the United States in which the insanity defense was used as explanation for a crime (*Freeman v. People*, 1847). However, the concept of moral insanity was challenged by an increasingly popular idea of hereditary degeneration, which explained insanity and criminality as inborn traits

wherein a human can devolve and return to a primitive form down the evolutionary ladder. Thus, moral insanity lost momentum in Western (including American) psychology (Rafter, 2008).

However, while American criminal psychology largely abandoned moral insanity in favor of degeneration, the idea continued to thrive in institutions for the mentally retarded. Moral insanity was adapted into “moral imbecility” by combining it with the now-prevalent degeneration theory, thereby shifting the mental condition into a physical one. By the 1880s, the idea of moral insanity had been influenced by evolutionists such as Charles Darwin, and moral insanity had been redefined with degenerationist ideas, biologizing the concept of criminality. Although separately developed, the moral imbecile echoed the sentiments of the born criminal, a concept describing an innate criminality that I will discuss in the next section. Indeed, the criminal began as an individual with free will but an inability to distinguish rights from wrongs, then morphed into an irrational being with no control of the criminal tendencies that she or he inherited.

Concurrent with the development of moral imbecility, another school of thought also attempted to explain the nature of the criminal. In the early 19th century, phrenology—determining an individual’s mental characteristics by analyzing the contours of their skull—gathered momentum. Proponents of phrenology claimed that criminals carried an innate defect of the brain, and that through phrenological manipulation the brain could be restored to normality and thereby rehabilitate criminals (Morin, 2014). According to this theory, biology strictly dictates the behaviors of two ends of the moral spectrum: incorrigible criminals and morally upright men. However, the environment could sway those in between these two classes one way or the other. Phrenology allowed any interested scholar to report their findings and attend phrenological conferences, thus allowing the middle class (those who were educated but not

overly so) to become experts on themselves—a point that will be reiterated later. In comparison to theorists of moral imbecility, whose explanation only addressed criminals with acute mental disorders, phrenologists could explain a wider range of criminality. Not without its critics (for example, English surgeon John Abernethy, who questioned discrimination based on phrenological claims) (Rafter, 1997), phrenology lost influence by the 1830s and gave way to the degenerative doctrine of criminality. I argue that phrenology is one of many movements that illustrates the social motivation of biological criminology. Biology used to explain criminality was a tool to differentiate “us” from “them,” a trend that continued through history and resulted in the acceptance of novel biological theories in ever-evolving social climates.

In the late 1800s, the first comprehensive theory of criminality that considered the entire scope of criminals (the shortcoming of moral insanity) and was self-sustaining (in comparison to prior doctrines such as phrenology and degeneration theory) was the work of Cesare Lombroso, an Italian anthropologist and physician. His “born criminal” theory postulated that the criminal was a specific type of person. According to Lombroso, incorrigible and chronically recidivist criminals were born with a predisposition towards crime and were atavistic in nature; therefore, they had no choice in their reversion to the primitive and could not be cured of their criminal tendencies (Mazzarello, 2011). With the influence of Lombroso, criminal anthropology grew into a science based on the idea that crime was a natural phenomenon and born criminals lacked free will. We will discuss the born criminal and how it contributed to eugenic criminology further in the next section; however, it is interesting to note that modern biocriminology, which theorizes the criminal as an atavistic individual, holds an eerie resemblance to Lombroso’s born criminal (Rafter, 2008b).

Following the era of Lombroso's eugenic criminology, another theory linking biology and criminality became prominent: the constitutional theory, which attributed criminal behavior to body type. Although the theory had existed in some form since the Greek physician Hippocrates linked the body's humors to behavior (Kalachanis & Michailidis, 2015), proponents such as German psychiatrist Ernst Kretschmer, Harvard anthropologist Earnest Hooton, and anthropologist William Sheldon spearheaded the mid-1900s adaptation of the theory. According to Kretschmer, there were three main body types—the pyknic (fat and associated with manic depression), the asthenic (skinny and associated with schizophrenia), and the athletic (slightly prone to schizophrenia) (Parsons & Marcer, 2005, p. 101). Similarly, Hooton attempted to classify offenses by body type, and Sheldon explored the relationship between body types, temperaments, and delinquency in a series of books—a process he called “somatotyping,” but whose core ideas were simply a variation of Kretschmer's beliefs (Rafter, 2004). When Nazi eugenics and biocriminology (which included the slaughter of “habitual offenders” in the name of racial hygiene) came to light (Rafter, 2008a), biological theories of crime quickly lost momentum. However, in the late 20th century, constitutional theory reemerged in scientific literature, particularly in the work of Harvard professors James Wilson and Richard Herrnstein, as well as British psychologist Hans Eysenck, who identified criminality in neurophysiological terms using personality (Rafter, 2004; Farrell, 1984). Although without the same vigor and no longer driven by a pro-eugenic social climate, biocriminology never completely died out. Despite the tarnishes on its name, biological theories of crime continued to hold appeal.

CRIME AND EUGENICS

One of the clearest connections between eugenics and criminology lies in the idea of the “born criminal,” where an individual is born fated to be a social delinquent. This idea has continuously evolved alongside the prevalence of eugenics, resulting in societal debates on the treatability of criminal and social degeneracy. In the 19th and early 20th centuries, these debates entailed a plethora of labels and diagnoses including idiocy, feeble-mindedness, and lunacy.

Before the mid-nineteenth century, prior to the popularization of eugenics, people with intellectual impairments—formally referred to as idiots—were scorned. However, in 1848, Dr. Hervey Wilbur opened the first home for the mentally retarded in New York, marking the first official attempt to institutionalize and educate idiots in the United States. According to Wilbur, a state-run institution for idiots would actually be cost-effective, as a legitimate education would reduce the risk of these idiots (who didn’t know any better) from committing serious crimes (Rafter, 1997, p. 20). By 1853 Wilbur’s institution was made permanent, and institutions for idiots gained popularity. However, the distinction between being retarded and being psychotic was blurry, with idiocy classified as a type of insanity. Although eugenic considerations had not yet come to the forefront, a connection between mental incompetence and criminality had already been established. As Edouard Seguin, first president of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons, stated, “today he is an imbecile, tomorrow he may be a criminal” (Trent, 1995, p. 55).

The establishment of the Newark Custodial Asylum in 1878 offered a eugenic method for treating idiots. Feeble-mindedness, defined as a characteristic of individuals who remained a child mentally, was also used a broad term used to describe the mentally and biologically unfit (Kansas, 1919). Here, feeble-minded women were detained because they were believed to be inherently promiscuous. This was an issue in itself since any children that these women produced

would then be predisposed to promiscuity and feeble-mindedness as well, resulting in an endless propagation of immorality. Furthermore, by nature of their feeble-mindedness, these women and their children would be inclined towards crime as well (Rafter, 1992). In conclusion, these women were deemed by the middle-class as legitimate biological threats to the good of society and humankind. The term ‘born criminal’, an umbrella term that could refer equally to specific individuals with a criminal history or to all individuals who were feeble-minded or otherwise unfit, became synonymous with these feeble-minded women. Arguments for eugenic control of feeble-minded women were grounded in seemingly solid scientific evidence. Darwin, for example, advised in *The Descent of Man* (1871), (although he recognized that this would be an unrealistic expectation) that a couple should abstain from marriage if either was inferior biologically. Eugenic family studies gained popularity in the 1870s, starting with Richard Dugdale’s 1874 analysis of a family he dubbed The Jukes. The Jukes referred to an extended family with a history of incarceration in upstate New York prisons. Genealogical records suggested that after one common ancestor, dubbed Margaret, family members began to commit crimes and thus began the family’s legacy of turpitude—therefore, criminality must have been inherited from Margaret (Dugdale, 1877; Estabrook, 1916). Later family studies appeared to confirm this belief, and in a subsequent section, we will explore these family studies further. The Newark Custodial Asylum marked a change from Wilbur’s kind education of the mentally retarded to a harder, more permanent solution relying on eugenics as more and more institutions for the feeble-minded began to see their inmates as a potential criminal threat to society.

Another variation of the moral imbecile became apparent concurrently in the prison system, where particularly difficult inmates who could only be controlled and not reformed came to be known as “incurable” (Brockway, 1995). This idea bore strong resemblance to the

imbeciles of the mental retardation institutions, with both “types” of people exhibiting some form of degeneracy and reversion towards primitive or immoral behavior. However, by the late nineteenth century, these two ideas of primitive people had merged. When the “father of criminology” Cesare Lombroso published his book *Criminal Man* in 1876, proclaiming that the “nature of the criminal” lay in an atavistic innate criminality (an influential school of thought to biological theories of crime, as mentioned previously), the idea of the mentally degenerate no longer referred only to the mentally retarded, but now also to irreformable criminals. Degeneracy was an inborn penchant to devolve and therefore commit crimes. Lombroso’s work garnered international admiration at its outset, having “proven” that crime had a biological origin, although he was not without critics and was soon discredited (Rafter, 1997). However, this fusion of the moral imbecile and the criminal degenerate had already culminated in the idea of the criminal imbecile. Although eugenics was not incorporated into criminal justice, the two doctrines began to coincide. Criminal anthropologists and scholars suggested capital punishment for the born criminal, including sterilization of recidivist criminals, castration of rapists, and even execution of certain criminal types such as murderers. For example, essays collected from 1909-1939 in the *Debaters’ Handbook* series included C.J. Ingram’s argument that “Heredity and atavism... have produced the criminal recidivist... are we not to continue [this line of reasoning] and say that the interests, and even the *being* of the criminal, are to be sacrificed for the welfare of the public?” (Steiker & Steiker, 2010). Here, eugenics and criminal justice undoubtedly converged to target the born criminal.

Supposedly, the institutionalization of the mentally degenerate was not done entirely out of ill will. Subscribers to the doctrine of eugenics saw the practice as altruistic in principal, envisioning a future where everyone would be healthier and happier (Rafter, 1997, p. 89)—a

goal for which modern proponents of eugenics continue to advocate. Indeed, the disease of criminality was only one of the many ailments that eugenics claimed it could eliminate from the human race. Despite this altruistic justification, another underlying incentive has driven eugenics and biological theories of crime through history: social control. Labels such as feeble-mindedness allowed for blasé use of methods such as sterilization or institutionalization, reflecting a clear level of self-interest among proponents of eugenics. Through diagnosing and treating those deemed inferior, the middle class claimed expertise on society and gained power over lower classes.

Beginning in the 1920s, as biological research in genetics such as the discovery of the chromosome began to challenge the loose definitions of heredity in criminal anthropology, middle-class authority began to assert its dominance in the form of now well-established professions and expertise, leading to a different form of biological theories of crime (Rafter, 2008b). Eugenic criminology began to lose momentum, though not nearly rapidly enough to prevent continued sterilizations of the eugenically unfit and discredit the eugenics movement as a whole. By preventing propagation of the lower classes, crime rates could be reduced—therefore, sterilization of lower-class women allowed eugenicists to reduce birth rates of future criminal sons and promiscuous daughters. By 1961, 61% of sterilizations in the United States had been conducted on women (Gordon, 2007). Native American women were refused obstetric care and threatened with the loss of welfare benefits unless they agreed to sterilization into the 1970s (Lawrence, 2000). In 1972, an investigation by the United States Senate revealed the forced sterilization of over 2,000 poor Black women on welfare (Ward, 1986). In this way, eugenic criminology was able to target the lower classes through race, socioeconomic status, and gender roles.

The origins and motivations of the born criminal suggest that the idea was a byproduct of both scientific advancement and social conditions. Under these conditions, eugenic criminology and biological theories of crime thrived. Ironically, the fall of eugenic criminology owed itself to the same factors as well. However, echoes of the eugenic criminology legacy continue to resound today. In recent years, multiple instances have occurred of judges offering shorter sentences in exchange for an individual agreeing to undergo sterilization. For example, Judge Sam Benningfield offered Tennessee inmates reduced jail time for sterilization in 2017, and Summer Thyme Creel of Oklahoma was given a reduced sentence following a medical sterilization at the recommendation of the judge in 2018 (Hawkins, 2017; “Oklahoma Woman Receives Reduced Sentence,” 2018). Well-educated and respected scholars in their fields such as Gail Anderson (former forensic entomologist at Simon Fraser University) and D. Emmanuel (Institute of Crime Prevention and Problem Solving of Trinidad and Tobago) have suggested ties between biology and criminology based on scientific evidence and experimentation, then advocated for the implementation of biological ideas of crime in criminal policy and criminology to reduce crime rates and advance the field (Anderson, 2007; Emmanuel, 2014). Although advancement in the biological sciences originally seemed to disprove hereditary criminality, modern research such as in epigenetics seems to suggest the opposite. This lasting sentiment, although diluted, illustrates the persisting influence of eugenic criminology.

BIOLOGICAL CRIMINALITY AS A CYCLE

Today, sociological explanations for crime remain dominant. However, biocriminology has begun to regain relevance, with contemporary scholars such as Anderson advocating for a discussion of biological factors of crime; in particular, Anderson makes a case for the importance

of biology in her textbook *Biological Influences on Criminal Behavior* (2007). According to British sociologist Nikolas Rose, modern society lives in a “biologized culture,” and indeed genetics research expanded immensely after Franklin, Watson, and Crick’s discovery of DNA’s structure in the 1950s, and more recently with the Human Genome Project. A number of biological theories of violence have emerged such as in the work of criminologist Adrian Raine (2013), and the identification of the supposed MAOA “warrior gene” (McDermott *et al.*, 2009). Recent work on the MAOA gene reflect modern ideas of epigenetics in that it suggests men with the gene may be more susceptible to committing crime if they were also abused when they were young (Byrd & Manuck, 2014). In 2018, professors Priscilla Savopoulos and Annukka Lindell claimed that the brains of criminals are less lateralized and present with atypical structural symmetries. In fact, the researchers referenced Lombroso’s *Criminal Man*, agreeing with his assertion that criminality has a biological basis (though they failed to ascertain why these cortical asymmetries caused a predisposition towards crime) (Savopoulos & Lindell, 2018). As former criminology professor Nicole Rafter points out, the social sciences have lost the influence to explain criminality, while the natural sciences have gained momentum (2008b, p. 202).

Another notion prevalent in modern biological explanations of crime is the idea of acquired criminality. When Charles Whitman, a mechanical engineering student at the University of Texas at Austin, murdered his wife, mother, and fifteen people on the university campus in 1966, his suicide note requested an autopsy to determine whether he had a mental disorder. The autopsy revealed a “pecan-sized tumor” in his hypothalamus, leading to some theories that his increased aggression was influenced by (even if not completely attributed to) pressure exerted by the tumor (Floyd, 2016). Similarly, a study by Joest Martinius of the Max-Planck-Institut für Psychiatrie pointed to a “striking similarity” between the location of

Whitman's tumor and that of a defect in an adolescent boy who committed homicide (1983). Similarly, childhood trauma can lead to neuropsychiatric changes, such as impediments in brain development and hormonal regulation which may result in obstacles to empathy and personality development, leading to aggression and criminal behavior (De Bellis & Zisk, 2014). Clearly, contemporary biocriminologists have suggested many links between biology and crime.

Biology has always played some role in explaining criminality. Biocriminology and eugenic criminology are interrelated, and people have accepted and rejected these doctrines based on social context, particularly thriving at the height of the eugenics movement in the mid-twentieth century. When evidence of Nazi eugenics and biological determinism came to light scientists worldwide avoided publishing research on any potentially eugenic or biologically deterministic theories. However, eugenics did not completely lose momentum; for example, Dr. Clarence Gamble, alumnus of Harvard Medical School, founded the North Carolina Human Betterment League in 1947 (two years after the end of WWII), which promoted forced sterilization aimed to reduce welfare costs and improve the genetic pool (Wilds, 2019).

Today, we find eugenic suggestions in modern biotechnology (for example, designer babies), and we see that biological explanations for crime are returning to prevalence. Scholars such as Anderson and Emmanuel are increasingly calling for an acknowledgement that biology plays a role in criminality, although most proponents remain cautious of eugenic implications. I argue that as each biological theory for crime loses momentum—whether it be phrenology, moral imbecility, or feeble-mindedness—another arises, and despite abuses of these ideas, we keep returning to biology to explain human nature. Thus, we find a cycle of accepting and rejecting different biological notions of behavior and criminality. Crime, which is inherently a social construct, cannot physically be hereditary (despite theories such as Lombroso's born

criminal proposing that it can). Crime does not carry one consistent definition over time and geographical space, and no single biological theory of crime is capable of addressing this issue. Furthermore, environmental factors that might affect criminality cannot be inherited biologically. However, nature and nurture cannot be completely separated; environment can affect biology, as epigenetics shows. Thus, criminality will always be tied both to biology and to environmental factors. Each biological explanation will cyclically gain and lose popularity, bringing with it a unique perspective on criminality.

Eugenic Family Studies

From the late 19th century into the 20th century, eugenic family studies were common in eugenic literature and served as one of its strongest ideological tools. It began with Richard Dugdale's 1877 study on "The Jukes," and the phenomenon snowballed with the publication of other family studies such as the Nams (1912), the Kallikaks (1912), and the Dacks (1916). These studies claimed that feeble-mindedness, which could contribute to criminal or other immoral behavior, was hereditary. Even beyond the height of the American eugenics movement, the idea of an entire family of feeble-minded and degenerate individuals could still be found in mainstream media; for example, the 1977 television sitcom *The Kallikaks*, based on the 1912 eugenic family study (although the sitcom itself was a failure, having only made it to 5 episodes), as well as a 1987 New Yorker Cartoon titled "The Jukes and Kallikaks Today" that remains available for purchase today (Chast, 2017). A 2006 film *Idiocracy* takes place in a society where the most intelligent humans have chosen not to reproduce while the least intelligent have children fruitfully, leading to increasingly dumber generations of humans.

THE JUKES

In 1874, Richard Dugdale visited upstate New York prisons as a member of the executive committee of the Prison Association of New York. In one particular jail, he found six members of the same family he called the “Jukes”. Upon further investigation, he found that of 29 immediate male relatives, 17 had been arrested and 15 convicted. This prompted further research into New York’s thirteen county jails and genealogical records, where Dugdale linked the criminals to two specific ancestors: “Max,” a frontiersman, and “Margaret, the Mother of Criminals,” who married one of Max’s sons. Through this genealogical evidence, Dugdale claimed that criminality afflicted the family. In total, the Jukes referred to a total of 42 families and 709 people, 540 of whom were related by blood. However, despite the role of heredity in criminality, Dugdale concluded that environment was largely to blame for their criminality, stating that habits were created by the environment and that these habits then became hereditary. Through this, he advocated for public welfare and improvements in the prison system to reduce the effects of environment on such habits. His work culminated in his 1877 book *The Jukes: A Study in Crime, Pauperism, Disease, and Heredity*.

However, a few decades later, Dugdale’s argument citing the importance of environment to criminality was turned on its head. Arthur H. Estabrook, who worked at the New York Eugenics Record Office (a research institute that served as center of eugenic and hereditary research), expanded on Dugdale’s study of the Jukes, publishing his findings in 1916. Rather than recognizing and emphasizing the role of environment on criminal behavior, Estabrook reanalyzed and expanded Dugdale’s study to argue that the Jukes continued to suffer from the same levels of feeble-mindedness and degeneracy as they had in the past. In contrast to Dugdale’s encouragement for public health initiatives, Estabrook proposed that families such as

the Jukes should be prevented from reproducing on the grounds that no amount of intervention could change the fundamental biology of a person (Estabrook 1916). This re-analysis of the Jukes has proved to be one of the most powerful and long-lasting analyses in eugenic family studies. The Jukes became symbols of biological degeneracy, and Estabrook's interpretation was cited to illustrate the need for eugenic policies such as sterilization to prevent the proliferation of criminals and other immoral individuals. Although the eugenics movement largely went underground after the heinous actions of the Nazis came to light in World War II, the Jukes continue to be cited by religious groups as exemplifications of inherited degeneracy and immorality (Bethel Church, 2018).

An examination of the Jukes suggests that some correlation does indeed exist between criminality and genealogy. The studies on the Jukes included statistical data backed up by pre-existing scientific ideas on the heredity of parental traits. However, whether this correlation was a result of environment or direct heredity is open to debate, with the general opinion swaying based on the current social climate. Originally, as Dugdale proposed, the family of feeble-minded and morally degenerate incarcerated individuals deserved to be helped. Then, this idea was flipped to make these individuals offenders rather than victims, following the idea of the born criminal. This, perhaps, also illustrates how family studies could be deceptive—easily manipulated to fit a certain agenda. Although it is easy to make these criticisms in hindsight, it is important to keep in mind that family studies were considered by both scholars and the average person as legitimate scientific studies into the 20th century. Just as eugenic family studies have become outdated, we should realize that our own modern research has limitations and is not infallible in either methodology or conclusions.

THE KALLIKAKS

Another prominent family that supposedly illustrated the heritability of feeble-mindedness was the family described under the pseudonym of the Kallikaks, whose lineage was documented by Henry H. Goddard in his 1912 book *The Kallikak Family: A Study in the Heredity of Feeble-Mindedness*. A well-respected psychologist and eugenicist, Goddard worked at the New Jersey Home for the Education and Care of Feeble-minded Children. According to Goddard, a Revolutionary War hero he called Martin Kallikak was the link between a morally upright family and a degenerate offshoot of it. Supposedly, Martin engaged in a brief one-time affair with a feeble-minded barmaid on his way back from battle, resulting in a feeble-minded son. Martin then returned home, “straightened up,” married a respectable girl, and went on to father prosperous children. These descendants were intelligent, morally upstanding, and successful, each with respectable professions such as lawyers or doctors or who married into the most respectable families. Meanwhile, descendants of the affair with the feeble-minded barmaid were poor, intellectually disabled, and carried alcoholic and criminal tendencies. In conclusion, Goddard recommended the segregation of the feeble-minded, as even one encounter between a feeble-minded individual and a morally upright individual could result in generations of criminals and people who lived off taxpayers’ money (Goddard, 1912). *The Kallikaks* was a wildly successful best seller, going through multiple printings and becoming one of the most well-known eugenic family studies in its time. In fact, most biology and psychology texts following the publication of *The Kallikaks* referenced it as conclusive evidence of the hereditary nature of feeble-mindedness (Smith & Wehmeyer, 2012). In 1927, *The Callicac Family* [sic] was cited as evidence in *Buck v. Bell*, which deemed sterilization of feeble-minded individuals constitutional (Buck v. Bell, 1927; Smith & Wehmeyer, 2012).

Although *The Kallikaks* was praised in the early 20th century as grounded in solid scientific evidence (indeed, the book included an incredibly detailed family tree with statistically near-Mendelian ratios of inheritance), Goddard's claims and genealogical tree don't hold up to scrutiny today. Goddard's claims that Deborah Kallikak, the young woman who began his inquiry into the Kallikak genealogy, was feeble-minded have been debunked. Her real name was Emma Wolverton, and research into institutional records has revealed that although she did not initially get along with other children (leading to the explanation that she was feeble-minded), she was skillful and hardworking, eventually excelling in woodworking and dressmaking. Numerous other claims such as the fact that Emma's mother had had three other illegitimate children before her were also debunked (Smith & Wehmeyer, 2012). Furthermore, any transgenerational learning disabilities and many physical abnormalities were likely to have been caused by fetal alcohol syndrome rather than inherited traits (Karp *et al.*, 1995). It's also notable that poverty was defined by *The Kallikaks* and other eugenic family studies as a trait of feeble-mindedness, resulting in a separation of "us" (the middle class) from "them" (the poor)—an element of eugenic social control. This separation illustrates how eugenics was not just driven by science, but also by political aims and unexamined prejudices.

WHAT DOES THIS MEAN?

With these insights into the Kallikak and Juke families, I argue that the eugenic family studies as a whole were used as an ideological tool, based upon flawed and possibly intentionally doctored data. In the case of the Jukes, a study originally advocating for helping the poor and intellectually disabled was sensationalized to present feeble-minded criminals who were parasites on society. The heritability of crime and feeble-mindedness in both families (and in fact in most

families studies) were backed up by statistical data, but this data was influenced by uncontrolled factors such as poverty and environment and cannot be said to be a direct result of a Mendelian heredity of feeble-mindedness, criminality, or degeneracy. Furthermore, these studies took place at the height of the American eugenics movement and were driven by middle-class “experts” attempting to dictate how society should function and gain leverage in the shifting social power. Even the language of the family studies distinguished these experts from those that they were diagnosing by presenting a dichotomy between the geographical descriptions of the feeble-minded (i.e. “waterlogged humanity,” “crude hut”) and the morally upright (i.e. “lifting energies,” “lordly river”) (Rafter, 1988; Marcattilio-McCracken, 2017). It follows, then, that the eugenic family studies, which advocated for the heritability of crime, are unreliable and a result of the social conditions of their time. With the momentum of the eugenics movement, biology once again found a way to explain crime, this time through heredity.

Eugenics in Prisons and Correctional Facilities

DR. LEO STANLEY

Some of the most explicit instances of eugenics in the context of criminality can be found in prisons. One example was the San Quentin State Penitentiary in California, where Dr. Leo Stanley served as the chief surgeon from 1913 to 1951—despite having no prior surgical experience. Stanley was a eugenicist whose ideals continued despite the uncovering of Nazi atrocities. Years prior, California had legalized the mandatory sterilization of the eugenically unfit. When Stanley began his career at the penitentiary, he became fixated on the sterilization of inmates. According to Stanley, over 20% of the convicts were feeble-minded, and Stanley

bemoaned the fact that although California law allowed sterilization of some of these inmates, it did not allow him to forcibly sterilize all of them (Blue, 2009, p. 220). In order to promote sterilization, he advocated for the benefits of the procedure, claiming that it would promote health and libido. By convincing inmates of the positive effects of sterilization, Stanley was able to sterilize around 600 inmates over the course of two decades (Blue, 2009). A statement in his 1940 prison memoir, *Men at Their Worst*, exemplifies Stanley's attitude towards the inmates: "[the prisoner was a] perfect specimen for any proponent of euthanasia, or painless elimination of the socially unfit" (Stanley, 1940). According to Stanley, an unattractive appearance could also contribute to criminal behavior due to an inability to work a legitimate job. For this condition, Stanley would perform plastic surgery on inmates (Dowd 2019). Stanley also possessed an experimental interest in endocrinology, believing that malfunctioning organs and hormone levels led to criminality (Blue, 2009, p. 213). Indeed, Stanley's treatment of the inmates at San Quentin exemplifies the attitude that criminality could, like a disease, be cured and treated. To him, medicine was a tool for social hygiene.

However, when we view Stanley's career through a historical lens, the social climate of the early to mid 1900s explains a great deal of his medical and scientific beliefs. In the context of urbanization, women's suffrage, working-class movements, and mass immigration, the idea of the middle-class white male was threatened by racial suicide (wherein the White race would lose its superiority by breeding with other, inferior races) and feminization (Blue, 2009, p. 221). Indeed, Stanley's career developed through the American Progressive Era and New Deal Era, as well as during the shift of women's roles to outside the house during WWII. Thus, masculinity became increasingly associated with physical and sexual power, something society seemed to be forgetting. For Stanley in particular, the ideal man also possessed a sense of morality and self-

control—something criminals lacked but could be treated for. It's unsurprising, then, that in the fervor to preserve the dominance of the traditional middle-class white male, Stanley turned to medicine to explain and cure the ailments that plagued this dominant class. Rather than solid scientific evidence, Stanley's calls for sterilization and crime control were greatly influenced by his own perceived need to prevent racial suicide and preserve masculinity.

I argue that the case of Leo Stanley illustrates how theories of medicine and biology are greatly influenced by the social conditions of an era. As a result of attributing crime to biology and seeking a medical solution towards crime, medical treatments became a slippery slope to eugenic measures such as through coerced or misinformed sterilization. Stanley is an extremely clear case of what could happen when we seek to solve crime through biological means, and what happened at the San Quentin State Penitentiary should serve as a warning for our own common contemporary tendencies to offer criminals shorter sentences in exchange for sterilization. As already noted, a Tennessee judge offered criminals a reduced sentence in exchange for sterilization as recently as 2017 (Hawkins, 2017), a policy that echoed Stanley's values.

CRIME AND ADOLESCENT GIRLS

From the 1890s to the 1920s, the United States witnessed an era of social activism and progressive reform as a result of urbanization, immigration, industrialization, and political corruption—the Progressive Era. Adolescence itself was a newly recognized developmental stage; prior to the Progressive Era, the teenage years were indistinct from the late years of childhood or the early years of adulthood. Prior to the establishment of the first juvenile court in Chicago in 1899, teenage delinquents either underwent informal punishment or were tried as

adults. As the role of women began to shift through such movements as women's suffrage, American society began to examine the proper duty of a woman more closely, leading to increased scrutiny of adolescent girls. The era coincided with the growing popularity of the eugenics movement, a combination that led to the stigmatization of "degenerate girls" who were guilty of precocious sexuality. However, due to both the changing role of women in society and the lack of specificity in how the newly established juvenile courts were run, delinquency for girls came to be largely defined by sexual immorality. These crimes included promiscuity, illegitimate pregnancy, prostitution, staying out past curfew, and "unwilling submission to sexual assault;" in other words, being a victim of sexual assault (Walker, 1930). As the wayward girl became a symbol of female deviance and the moral erosion of society, adolescent girls were tried nearly exclusively for the moral offense of immoral sexual activity (Abrams & Curran, 2000). This did not necessarily mean that the girl had, in fact, had intercourse at the time of her prosecution, but rather that something about her indicated that she had at one point engaged in such an act or might be prone to do so in the near future. In contrast, adolescent boys were largely tried for non-sexual offenses that were no different from those of adults, such as stealing (Schlossman & Wallach, 1978).

In conjunction with eugenic interpretations, feeble-mindedness became an explanation for female sexual delinquency and therefore the trait was regarded as heritable. Furthermore, under the doctrine of eugenics, non-Anglo-Saxon immigrant and African American girls were more commonly deemed sexually degenerate due to their allegedly inherently inferior race (Kennedy, 2008; Schlossman & Wallach, 1978). Clearly, juvenile delinquency was fraught with inequity, both in terms of the treatment of different sexes and in the treatment of different racial and socioeconomic classes. From a retrospective angle, it becomes obvious that the social climate of

the Progressive Era determined the discrimination that pervaded the juvenile justice system. Rather than concrete scientific fact, the prosecution of juvenile girls was the product of fears that stemmed from a changing society. Similarly, if we were to consider criminality as heritable today, it would undoubtedly lead to the prosecution of certain groups over others. Already, African American adults and Hispanic adults are 5.9 times and 3.1 times, respectively, as likely to be convicted of crime as Whites (The Sentencing Project, 2018). Likewise, African American and Native American youth are overrepresented in juvenile correctional facilities (Sawyer, 2019). By regarding criminality as heritable, we imply that certain racial groups carry the genes or biological tendencies necessary for crime more than others, an idea that is problematic in itself and is not too far from that of eugenics. Societal issues already lead to discrimination, and a perceived heritable tendency towards criminality could further the disparity between ethnic and socioeconomic groups.

Furthermore, this would present another issue in attempting to regulate criminality. Crime itself does not include the same offenses across national or even state borders. In that case, which tendencies are heritable, and which are not? Once again, crime is a fluid concept, and the case of Progressive Era female juvenile delinquency illustrates how social climate determines what we criminalize and how we use biology to explain these tendencies. I also argue that the criminalization of female sexual activity contributed to the case against Carrie Buck in the 1927 court case *Buck v. Bell*.

Court Cases and Legal Proceedings

So far, I have explored eugenics and biological criminology in the academic and justice system settings. However, these notions were so prevalent that they influenced even Supreme Court decisions, reflecting how well-accepted and impactful the idea of heritable criminality was in even the lives of the common people.

BUCK V. BELL

In 1927, the Supreme Court of the United States ruled that a Virginia state law dictating compulsory sterilization of unfit or mentally disabled individuals was constitutional. According to Dr. Albert Priddy, the superintendent of the Virginia State Colony for Epileptics and Feeble-minded, a patient named Carrie Buck needed to be sterilized as she posed a biological threat to society. Although Buck was 18 years old, Priddy asserted that she had a mental age of 9. These unfit genes were supposedly inherited from her mother, who, he claimed, had a history of prostitution and other immoral behaviors. Although Carrie had been adopted by another family immediately following her birth, she became pregnant despite not being married. This allegedly illustrated Carrie's incurable nature, as obviously she had inherited her mother's genes and could not help her promiscuous nature. Buck was ordered to undergo sterilization, a demand that Buck and her asylum-assigned guardian Robert G. Shelton (who in fact supported her sterilization) brought to court on the grounds that all adults had the right to reproduce by the due process clause of the Fourteenth Amendment. Along the way, Priddy passed away and the case was entrusted to his successor, Dr. John Bell (*Buck v. Bell*, 1927).

The case culminated in an 8-1 Supreme Court ruling in favor of Buck's sterilization. In the final written ruling, the infamous phrase "three generations of imbeciles are enough" justified Buck's sterilization in the interest of public welfare. The verdict highlights the prominence of

eugenic thought in the general public. The only dissenting opinion was Justice Pierce Butler, a devout Catholic whose faith may have played a significant role in his decision; however, he did not produce a written opinion. Buck underwent her compulsory operation, but it later came to light that her illegitimate child was a result of rape by her adoptive mother's nephew—not her own promiscuity.

Buck's forced sterilization carried significant implications. The case legitimized eugenic laws and sterilizations in the United States; states passed new sterilization laws or revised ineffective ones (that failed to sufficiently define the terms of sterilization) to mirror Virginia's law (Quinn, 2003). Previously, only California had enacted effective sterilization laws, but now the majority of the United States had some reliable form of eugenic law. The ruling of *Buck v. Bell* has never been explicitly overturned, although sterilization eventually became difficult to enact due to the 1942 case, *Skinner v. Oklahoma*, which prevented the sterilization of a blue-collar criminal. The case has remained relevant through time, having been cited in 1973 as justification for why abortion is not an unlimited constitutional right (*Roe v. Wade*), and later in 2001 to prevent coerced sterilization of a mildly retarded woman (*Vaughn v. Ruoff*).

Carrie Buck's case demonstrates the prevailing notion that feeble-mindedness and other non-physical features (such as female promiscuity, as discussed previously) were thought to be hereditary. In other words, because of her lineage, biological determinism dictated that Buck would be immoral despite her new adoptive environment. In the conservative social climate of the 1920s, immorality was extremely frowned upon and to an extent criminalized. In a 1905 book titled *The Criminal Offender*, Lombroso suggested that female crime resulted from atavistic individuals, as in the case of feeble-minded individuals. Theories surrounding female crime reverted women to their natural feminine roles; for example, a woman might turn to prostitution

to fulfill her role of feminine service if she was unable to marry. The idea of a woman was inherently sexual, and sex was the source of crime (Klein, 1973). Buck may not have explicitly committed a crime, but the criminal tendency towards sexual deviance was theoretically in her genes. Buck's half-sister was later sterilized without her knowledge to prevent the propagation of her genes, but Buck's half-brother was not, reflecting the concept that sex and promiscuity as a crime was an inherently feminine transgression.

However, acceptance of Carrie Buck's diagnosis as an incorrigible sexual deviant ignores evidence that may suggest otherwise. Buck had been noted to be a student of average intelligence through her primary school years, then was removed to help with housework at home. Buck's illegitimate daughter was also reported to be of average intelligence, and in fact excelled in deportment, until she died of measles and enteric colitis at the age of 8. During Buck's trial, Joseph DeJarnette, a prominent eugenicist, advocated for Buck's sterilization from a eugenic standpoint. A professor at Georgia State University, Paul A. Lombardo, interviewed Buck prior to her passing. Lombardo has alleged that Buck was of average intelligence, and that evidence of her feeble-mindedness had been fabricated (Lombardo, 2010).

I argue that Buck's sterilization resulted from societal ideas of female crime rather than the biological basis that eugenics claims. Buck's case demonstrates how science itself is not always objective, as well as highlighting that crime is a fluid concept. In Buck's case, being promiscuous was a crime. Furthermore, crime, an inherently social construct, was attributed in this case to a "hard" natural science. The people who testified against Buck all carried a certain biased mindset, but none of them were trained geneticists. Although promiscuity of women continues to be considered an immoral trait by conservative populations today, our increasingly

liberal and progressive social climate would result in closer scrutiny and criticism of punishing promiscuity to the point of sterilization.

SKINNER V. OKLAHOMA

After *Buck v. Bell* legitimized eugenic laws throughout the United States, the state of Oklahoma joined the sterilization movement and became the 30th state to pass such legislation. In 1931 Oklahoma allowed for sterilization of inmates at state institutions on the basis of “cacogenic insanity, idiocy, imbecility, feeble-mindedness, or epilepsy” (Paul, 1965). However, this required the consent of the inmate, regardless of their mental state. In 1933 the law was expanded to permit sterilization of inmates who were habitual criminals (defined as having offended three times) or who would likely become a public charge. In 1935, Oklahoma again expanded the law, mandating the involuntary sterilization of reoffending criminals who carried three convictions that revealed problems with an individual’s morality (Nourse, 2008, p. 84).

One man affected by this policy was Jack Skinner who had accumulated three convictions for chicken-stealing and armed robbery. By law, Skinner was now required to undergo sterilization through vasectomy, a procedure that he felt violated his rights. The case was brought eventually to the Supreme Court in 1942, where the final verdict prevented Skinner from being sterilized. However, this was not because forced sterilization presented a problem; rather, this was unconstitutional because the law violated the Equal Protection Clause of the Fourteenth Amendment. According to the Sterilization Law, white collar crimes did not qualify for forced sterilization, but all other crimes did. Therefore, the same moral violation did not result in the same punishment, and the law was invalid (*Skinner v. Oklahoma*, 1942).

Skinner v. Oklahoma did not explicitly overturn the rulings of *Buck v. Bell*. The mentally disabled or ill were still subject to compulsory sterilization, and only punitive sterilization (which made up an extremely small percent of mandatory sterilizations) came to an end. However, the inconsistent connection between criminality and biology was exemplified in this case. In his concluding statement, Justice William O. Douglas pointed out that “We have not the slightest basis for inferring... that the inheritability of criminal traits follows the neat legal distinctions which the law has marked...” (*Skinner v. Oklahoma*, 1942). In other words, there is a dichotomy between the heritability of different types of crimes; there is no reason that criminality would be inherited for blue-collar crimes such as chicken stealing or other petty crimes, but would not be an inherited trait in executing white collar crimes. Indeed, biology does not sufficiently explain every social and legal definition of crime, therefore, using biology to explain this human construct does not make sense. Yet regardless of the incomprehensiveness of the biological model, biological criminology continued (and continues) to hold influence.

Eugenics and Crime Today

Biologizing criminality carries numerous implications. As we've seen, it's not a novel idea, but it's not outdated either, as the 2017 Tennessee example mentioned earlier suggests. Although the judge in this case claimed that his aim was to end the cycle of repeat drug offenders with children, critics likened the program to eugenics in that it aimed to restrict reproductive freedom for a particular cohort of people (Hawkins, 2017). If we continue down this path of a biological basis for crime, legal cases may be handled differently in the future. Insanity pleas result in convicted individuals being sent to mental institutions on the grounds that their mental state is a factor outside their control, and therefore they are not wholly liable for what they did. Similarly, if our biology determines our actions, should a criminal be held liable for their actions? If we find that an individual carries a biological tendency towards crime, should we intervene to ensure that they will not commit crimes in the future? Or would this cause undue discrimination and exacerbate the situation? These are all questions that we do not have sufficient discussion around, and it would seem that we are not yet prepared to address the consequences.

Perhaps the clearest scientific beginning to modern eugenics is the Human Genome Project, or HGP, an international effort to fully map the genetic makeup of the human species that can be regarded as the first major step towards manipulating our own DNA. After fully sequencing the DNA of humans and other organisms important to research, the project hoped to determine what these sequences meant and how they manifested in different traits. The project began in 1990 and was completed in 2003 (What is the HGP, 2018). At its conception, it remained questionable whether or not the project would yield usable results. Of all of the data in a DNA sequence, most would be dead ends that would encode nothing of significance. The vast

majority of sequenced base pairs would be introns of no practical use, and it would be difficult to distinguish this inconsequential data from important sequences that actually encode expressed traits. Even if the project were to determine the DNA sequence of a particular protein, it would be incredibly difficult to understand how the protein folds and functions in the human body. Furthermore, it remains unclear exactly how many things can affect and direct gene expression; beyond the obvious of what a gene is, the complexity keeps us from a full understanding. From a scientific standpoint, it seems foolish that a multibillion-dollar project should be undertaken only to yield mostly unusable or unreadable data when these funds could be used for other, more practical research (Tilghman, 1996).

Ethically, the Human Genome Project has presented numerous concerns as well. Some considered the venture to be a modern gateway for eugenics, and the HGP founded a program called the ELSI (Ethical, Legal, and Social Implications) to address these concerns. It targeted four main considerations: privacy and fairness of genetic information, new genetic technologies, ethical issues of genetic research, and the education of the public regarding genomic research (What were some of the ethical implications, 2020). Furthermore, religious groups expressed concern that this would be the gateway to humans “playing God” and wrongfully interfering with nature (du Toit, 2014). However, despite these concerns, the project commenced. Since then, DNA has become commercialized with companies such as 23andme determining customers’ ancestry based on DNA samples. The HGP has also facilitated the mapping of mutant genes that may contribute to human disease. With concrete scientific data, the idea of human-designed humans gained popularity in pop culture and alarmist groups—a narrative that proponents of eugenics would endorse. These developments have also re-opened the debate over the biological basis of criminality.

In recent years, the term “liberal eugenics” or “neo-eugenics” has gained popularity. This term refers to using modern biological techniques to enhance human attributes. Through human genetic engineering, for example through the CRISPR gene editing system (which allows scientists to selectively target genes to edit), modern technologies could be used for both therapy and enhancement of certain traits. This raises ethical concerns such as where the line between therapy and enhancement would be drawn, how discrimination based on biological fitness could deepen socioeconomic rifts, and the consequences of certain traits being favored over others. This discussion about human gene editing has led to the concept of designer babies, children whose genetic traits have been altered or otherwise explicitly chosen by their parents.

One of the earliest forms of parents explicitly choosing their child’s traits was using ultrasound, developed in the 1950s, to determine the biological sex of the fetus. Based on the sex of the child, parents sometimes chose to terminate pregnancy, or in extreme cases, commit infanticide. Though this method of using ultrasound to determine abortion was illegal, it was widespread enough to result in a significant sex gap in Asia and the Indian subcontinent into the modern day. During the 1970s, in-vitro fertilization, or IVF, was developed to allow infertile women with damaged fallopian tubes to conceive children. A decade later in the late 1980s, pre-implantation genetic diagnosis, or PGD, was invented to test for genetic defects in a zygote. PGD was first used to test for cystic fibrosis, but since then has expanded to include other genetic diseases such as Tay-Sachs disease and Sickle Cell Anemia. Today, PGD is also offered to select for cosmetic features such as eye color (Shanks, 2018). Ironically, despite the illegal nature of selecting biological sex through abortion, parents today have the option of using PGD to control their child’s sex based on existing family dynamics—now referred to as “family balancing”

(Lieman & Breborowicz, 2014). Despite a heightened sense of caution around the term “eugenics,” the sentiments of choosing certain traits over others persist.

PGD, IVF, and other assisted reproductive technologies present a vast array of new ethical questions. If society agrees that criminality carries a biological basis, would these genetic risk factors of criminality be considered diseases that we can select against as well? Although no well-educated scientist expects to find anything as simple as a “criminal” gene (but nevertheless is brought up occasionally in the press), scientists might select against risk-factor genes such as the MAOA gene. In fact, some policymakers and academics have already suggested the use of modern technologies to reduce crime rates. For example, Martin Nelwan of the Nelwan Institution for Human Resource Development in Indonesia recommended methods such as the CRISPR system to suppress antagonistic behavior linked to the MAOA-L allele. However, though gene editing may reduce crime rates by removing these at-risk genes, I argue that it’s unconvincing that simply removing these genes would end or even significantly reduce crime and violence. Societal issues that motivate crime such as poverty or drug and alcohol abuse would remain, and mental illness would continue to plague individuals and contribute to crime. As Yale psychiatrist Bandy X. Lee states, human violence is a culmination of psychological, social, and environmental factors—not only biological factors (Lee, 2016). To biologize criminality is also to discredit the external factors that contribute to aggression or violence and instead shift focus to heredity. Furthermore, our modern definitions of biology and crime will likely change as time progresses and social conditions change. Epilepsy was once considered an example of feeble-mindedness, yet today it is a far less stigmatized treatable condition. Similarly, there are therapeutics for traits we may consider as possessing a biological basis. If we come to the conclusion that we can select against biological risk factors for crime, many more ethical

issues arise: for example, do we have the right to alter biology like this? If we can edit out crime, what else do we have the right to modify? And, of course, are we legitimizing eugenics once again by suggesting that there are desirable and undesirable traits that we are justified in controlling? When we consider all the potential implications of biologizing criminality, it's simply not worth the risk.

Conclusion

Eugenics, biology, and criminology have enjoyed a close relationship throughout history and into the modern day. When one biological theory falls short of sufficiently explaining crime, another emerges without fail. However, when we attribute criminality to biology, eugenics gains credibility and a platform pushing for biological superiority and manipulation gains momentum. When we step back and observe these doctrines of biological determinism and eugenic regulation, we find that the “science” is a result of the social climate rather than of objective facts. Furthermore, using biology to explicate crime and pushing for eugenic control of criminality ignores a fundamental shortcoming: crime is inherently a social construct. Therefore, the definition of crime is fluid. Even if biology plays a role in aggression or violent behavior, this cannot be extrapolated to mean that biology causes crime—a construct which encompasses different actions in different times and places.

Today, the cycle of accepting and rejecting biological explanations for crime continues. Most scientists today are more wary of eugenics than their predecessors, but eugenic implications remain when we attribute crime wholly to biology. The prevalent idea of epigenetics seems to hold a middle ground between nature and nurture, where biology plays a

role in human behavior but doesn't ignore the importance of environmental impacts. However, when experts or law enforcement officials entertain the idea of genetic manipulation to improve crime rates—whether that be through the sterilization of incarcerated individuals or using assisted reproductive technologies to select for certain genes—eugenics becomes an obvious consequence. Even with the softer biological determinism of epigenetics, there are eugenic consequences that we must consider. Especially with modern technologies such as CRISPR and PGD, it becomes increasingly important that we are aware of how biology shapes our ideas of criminality. By attributing crime to biology, it becomes a slippery slope to a modern form of eugenics and presents a plethora of new ethical questions.

It's unavoidable that biology and criminality will continue to harbor a close relationship. Although I strongly caution against attributing crime to biology at all, biological criminology is an inevitable approach to criminality. Thus, it's most important to instead address the implications of biological crime, including ethical, legal, and social ramifications so that we may handle the subject responsibly moving forward. For example, should we intervene in individuals who are at "high risk" of committing a crime? If we were justified in intervening, would this actually make them more likely to commit crime due to stigmatization? And how does this affect the prosecution of someone who carries a biological tendency towards crime? I believe that interventionist approaches to address high-risk individuals wrongly punish those who have done nothing wrong and can cause more harm than good, such as through facilitating stigmatization. This would also lessen the personal responsibility of a criminal who claims a biological inclination towards crime. However, I urge for further discussion of these implications among academics and civilians alike, as well as research to support each stance.

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